



UNITED STATES DEPARTMENT OF COMMERCE

Patent and Trademark Office

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

H.A

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
08/999,663	12/18/97	COLGAN	E Y0994-065XX

MM42/0723

DANIEL P MORRIS
IBM CORPORATION
INTELLECTUAL PROPERTY LAW DEPT
PO BOX 218
YORKTOWN HEIGHTS NY 10598

EXAMINER
DUDEK, J

ART UNIT	PAPER NUMBER
2871	(O)

DATE MAILED: 07/23/99

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No. 08/999,663	Applicant(s) Colgan et al
	Examiner James Dudek	Group Art Unit 2871

Responsive to communication(s) filed on Jan 12, 1999

This action is **FINAL**.

Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire three month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

Claim(s) 1-45 is/are pending in the application.

Of the above, claim(s) 14, 32, and 33 is/are withdrawn from consideration.

Claim(s) _____ is/are allowed.

Claim(s) 1-13, 15-31, and 34-45 is/are rejected.

Claim(s) _____ is/are objected to.

Claims _____ are subject to restriction or election requirement.

Application Papers

See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

The drawing(s) filed on _____ is/are objected to by the Examiner.

The proposed drawing correction, filed on _____ is approved disapproved.

The specification is objected to by the Examiner.

The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

All Some* None of the CERTIFIED copies of the priority documents have been

received.

received in Application No. (Series Code/Serial Number) _____.

received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

Notice of References Cited, PTO-892

Information Disclosure Statement(s), PTO-1449, Paper No(s). 3

Interview Summary, PTO-413

Notice of Draftsperson's Patent Drawing Review, PTO-948

Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

Art Unit: 2871

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.
2. The numbering of claims is not accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claims 16-39 have been renumbered as 15-38. Also, claim 16 was renumbered as claim 15. The amendment filed 8/3/98 changed claim 15 (originally numbered as claim 16) to the claim 15 in the amendment filed 8/3/98.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 16-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The "optical blocking layer" lacks the proper antecedent basis.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who

Art Unit: 2871

has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

6. Claims 1, 3-5, 8-11, 15, 18, 25, 30-31, 34-39, 41 and 43-44 are rejected under 35 U.S.C. 102(e) as being anticipated by Sato et al (5,461,501).

Per claim 1, 18, 25, 30-31, 34-39, 41, and 43-44, Sato et al's figures 9 and 10 disclose a spatial light modulator array for modulating light to form an image comprising: a plurality of liquid crystal devices (the volume of liquid crystal that corresponds to the region above pixel electrodes) positioned over respective mirrors (109) on a dielectric layer (217) on a semiconductor substrate (201), a plurality of electrical circuits (101-104) formed in said semiconductor substrate (see figures) coupled to said liquid crystal devices, respectively, for placing a voltage across its electrodes (coupled via the electric field generated by the pixel electrodes), and a reflector/absorber layer (Al layer 208) positioned and patterned with respect to said mirror for shielding said plurality of electrical from ambient light circuits (see figures, the shading layer clearly shields the transistor from the ambient light), said reflector/absorber layer having an edge overlapping an edge of said mirror to form an overlapping region to decrease ambient light from passing into said semiconductor substrate (see figures). Regarding claims 18, 25 and 28, the frame composition is the insulating layer 217 which surrounds the pixel when seen from the liquid crystal side of the display.

Per claim 3, the mirrors are formed from aluminum (see column 10, lines 20-57).

- Per claim 4, wherein the mirrors have a supporting layer (217) having a substantially planar upper surface (see figures) and the mirrors includes a metal layer for reflecting light (the aluminum pixel electrode and is on the planar surface).

Per claim 5, the supporting layer includes a dielectric material (see column 10, lines 20-57) and electrical vias (the hole in the insulator) for electrical connection to the metal layer.

Per claim 8, the respective mirrors form the lower electrode of the plurality of liquid crystal device and is electrically coupled to the output of the electrical circuits (see figure 10).

Per claim 9, the reflector/absorber is form from a Al (see column 10).

Art Unit: 2871

Per claim 10, see figure 10; the reflector/absorber layer is electrically conductive (Al) and forms a blanket over the semiconductor substrate with openings.

Per claim 11, see column 4, line 67; CMOS transistors are used.

Per claim 15, see column 10.

7. Claims 7, 24, 26, 28 and 40 are rejected under 35 U.S.C. 102(b) as being anticipated by Kahn.

Per claims 7, 24, 26 and 40, Kahn discloses a liquid crystal display comprising a substrate; a plurality of circuit elements, 48, being formed on the substrate, 40; a first electrode over the circuit element, 70; a storage capacitor under the electrode, 66-70; an optical reflector formed on the electrode, 75; first and second orientation films, 80-81; a second transparent electrode, 33; liquid crystal material, 90; and optical blocking means, 66, see column 5 lines 35-40.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject-matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103© and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 2, 6, 12-13, 16-17, 19-20, 42 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato et al.

Art Unit: 2871

Per claims 2, 12 and 13, Sato et al disclose the claimed invention, as described above, except for the overlap of 5.4 microns, the capacitance of 0.03 pf and the pitch of 17 microns. However, it was well known to use a pixel pitch of 17 microns in order to improve the resolution. Also, when a pitch of 17 microns is incorporated into the display of Sato et al the end result would produce of capacitance of 0.03 pf and an overlap of 5.4 microns because the same materials are used for Sato et al that are the claimed materials and are the materials described in the specification, specifically the dielectric layer and both electrodes (for capacitance). The figures show the reflector/absorber overlapping almost the entire region under the mirror and thus would overlap by at least 5.4 microns. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate a pixel pitch (which would necessary would produce a capacitance of 0.03 pf and an overlap of 5.4 microns) in the display of Sato et al in order to improve the resolution.

Per claim 6, it was well known to combine spacers with liquid crystal material in liquid crystal displays to maintain cell gap thickness. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine well known spacers with the display of Sato et al since it was well known for maintaining the cell gap.

Per claims 16-17, 19-20, Sato et al discloses the claimed invention, as described above, except for the optical blocking layer (or reflector/absorbing layer) formed of cadmium telluride or germanium oxide. However, these materials are equivalent to the chromium oxide, tantalum oxide black layer of Sato et al found at column 11, lines 1-3. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the equivalent material (cadmium telluride or germanium oxide) for the chromium oxide, tantalum oxide material of Sato et al, since they were equivalents.

Regarding claims 42 and 45, the layer 208 is form of Al. However, it would have been a design choice to choose Ti as a material for the Al shading layer 208. Therefore, it would have

Art Unit: 2871

been obvious to one of ordinary skill in the art at the time the invention was made to incorporate Ti as a material for the Al shading layer 208, since it was a design choice.

10. Claims 21-23, 27, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kahn in view of Sato et al.

Per claims 21, 27, and 29, Kahn discloses the claimed invention, as described above, except for the nonconductive optical blocking material formed under the first electrode. However, Kahn uses the capacitor electrode as blocking electrode and Sato et al uses the insulating layer 217 as a blocking layer. Substituting the polyamide layer of Sato with the dielectric oxide layer of Kahn would improve the semiconductor protection. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the colored polyamide layer of Sato et al with the display of Kahn since such a modification would increase the protection of the circuit element from light.

Per claims 22-23, Kahn discloses the claimed invention, as described above, except for the optical blocking layer formed of cadmium telluride or germanium oxide. However, these materials are equivalent to the oxide layer, 68, of Kahn. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the equivalent material (cadmium telluride or germanium oxide) for the oxide layer of Kahn, since they were equivalents.

Double Patenting

11. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Art Unit: 2871

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

12. Claims 1-45 are rejected under the judicially created doctrine of double patenting over claims 1-19 of U. S. Patent No. 5,706,067 since the claims, if allowed, would improperly extend the "right to exclude" already granted in the patent.

The subject matter claimed in the instant application is fully disclosed in the patent and is covered by the patent since the patent and the application are claiming common subject matter, as follows: a spatial light modulator array for modulating light to form an image comprising: a plurality of liquid crystal devices positioned over respective mirrors on a dielectric layer on a semiconductor substrate, a plurality of electrical circuits formed in said semiconductor substrate coupled to said liquid crystal devices, respectively, for placing a voltage across its electrodes, and a reflector/absorber layer positioned and patterned with respect to said mirror for shielding said plurality of electrical from ambient light circuits, said reflector/absorber layer having an edge overlapping an edge of said mirror to form an overlapping region to decrease ambient light from passing into said semiconductor substrate.

Furthermore, there is no apparent reason why applicant was prevented from presenting claims corresponding to those of the instant application during prosecution of the application which matured into a patent. See *In re Schneller*, 397 F.2d 350, 158 USPQ 210 (CCPA 1968). See also MPEP § 804.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Dudek at (703) 308-4093



James A. Dudek
Patent Examiner
Technology Center 2800